

## REMARKS

The above Amendments and these Remarks are in reply to the Office Action mailed April 25, 2008. The Examiner and his supervisor are thanked for agreeing to a telephonic interview on Wednesday June 11, 2008 at 11:00 AM PST. The Applicant and Examiners discussed references including Jun, Uchihashi and Lin. The Examiners indicated they would carefully reexamine Uchihashi relative to claim 2 and Lin relative to claim 21 when a reply to the office action was filed.

Claims 1-21 were pending in the Application prior to the outstanding Office Action. Claims 1, 10 and 13 are amended. The amendments to Claims 1 and 10 are supported in the specification as filed at least at paragraphs [0007], [0027], [0028] and [0045] - [0052].

Claims 1-21 remain for the Examiner's consideration. Reconsideration and withdrawal of the rejections are respectfully requested.

## CLAIM REJECTIONS UNDER 35 U.S.C. § 102

Claims 1, 10 and 12 are rejected under 35 U.S.C. §102(b) as allegedly being anticipated by Jun et al., U.S. Publication No. US 2001/0020981 (hereinafter *Jun*).

### Claim 1

Amended Claim 1 includes the limitations 'defining a germ associated with each dominant group in each of the video segments, wherein the video segment less the germ defines a support in each of the video segments', 'separating the germ from the video segments' and 'filling in the space of the canvas between the germs, wherein filling in the

space of the canvas between the germs includes laying out one or more portions of the supports, wherein the one or more portions of the supports are positioned in the space such that at least one pixel value of the support relative to the closest germ is positioned corresponding to the position of that pixel value relative to the germ from which it was separated'. "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described ...The identical invention must be shown in as complete detail as is contained in the ... claim." Richardson v. Suzuki Motor Co., 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989) MPEP 2131. Since *Jun* does not disclose 'defining a germ associated with each dominant group in each of the video segments, wherein the video segment less the germ defines a support in each of the video segments', 'separating the germ from the video segments' and 'filling in the space of the canvas between the germs, wherein filling in the space of the canvas between the germs includes laying out one or more portions of the supports, wherein the one or more portions of the supports are positioned in the space such that at least one pixel value of the support relative to the closest germ is positioned corresponding to the position of that pixel value relative to the germ from which it was separated', it does not disclose all limitations of Claim 1. Accordingly, Claim 1 is not anticipated by *Jun*.

#### **Claim 10**

Amended Claim 10 includes the limitations 'determining a germ in each of a plurality of images, the germ containing a region of interest, wherein the video region less the germ defines a support in each of the video regions', 'separating the germ from the video segments' and 'filling in the space of the canvas between the germs with one or

more parts of the support, wherein at least one pixel in the space corresponds to the support pixel from the closest germ'. Since *Jun* does not disclose these limitations, it does not disclose all limitations of Claim 10. Accordingly, Claim 10 is not anticipated by *Jun*.

Claims 12 directly depends from independent Claim 10, and is therefore believed patentable for at least the same reasons as independent Claim 10 and because of the additional limitations of this claim.

In view of the above, Applicants respectfully request that the Examiner reconsider and withdraw the 102(b) rejections.

#### **CLAIM REJECTIONS UNDER 35 U.S.C. § 103**

**A.** Claims 2-6, 13-15 and 20 are rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over *Jun*, in view of Uchihashi et al., ACM Multimedia: "Video Manga: Generating Semantically Meaningful Video Summaries" (hereinafter *Uchihashi*).

#### **Claim 1**

Amended Claim 1 includes the limitations 'defining a germ associated with each dominant group in each of the video segments, wherein the video segment less the germ defines a support in each of the video segments', 'separating the germ from the video segments' and 'filling in the space of the canvas between the germs, wherein filling in the space of the canvas between the germs includes laying out one or more portions of the

supports, wherein the one or more portions of the supports are positioned in the space such that at least one pixel value of the support relative to the closest germ is positioned corresponding to the position of that pixel value relative to the germ from which it was separated'. A word search of *Jun* indicates the words 'space' and 'separate' do not occur. A word search of *Jun* indicates the word 'background' appears only in the title 'background to the invention', while the word 'support' appears twice in paragraph [0081] but in both cases in the verb form and pertaining to 'providing or maintaining' but not in the noun form. Therefore, *Jun* does not explicitly teach or suggest separating the video region into a germ and a support and then filling the space with the support as outlined in amended Claim 1.

Since neither *Jun* nor *Uchihashi* teach or suggest these limitations, they do not teach or suggest all limitations of Claim 1. MPEP 2143.03. As such, Claim 1 was not obvious at the time the invention was made.

## **Claim 2**

Claim 2 includes the limitation "determining a group within each of the plurality of video segments having the largest 3-D volume". The Examiner states that "Uchihashi teaches determining a group within each of the plurality of video segments having the largest 3D-volume (Uchihashi: section 4.2, length of segment is scored)". Final Office Action mailed January 17, 2008, p 5 lines 7-8. The Applicants have defined '3-D volume' in the specification as filed. "Applicants need not confine themselves to the terminology used in the prior art, but are required to make clear and precise the terms that are used to define the invention whereby the metes and bounds of the claimed invention

can be ascertained”. MPEP 2173.05(a). The Examiner is directed to the sentences “[a] video can be regarded as a three dimensional volume in x-y-t space” and “[a] region may be characterized as a subset three dimensional region within the x-y-z space of the three dimensional video segment 410” in paragraph [0032] and elsewhere in the specification for the definition of ‘3-D volume’. Since, *Uchihashi* does not teach or suggest a ‘3-D volume’, it does not teach or suggest all limitations of amended Claim 2.

Further, *Uchihashi* does not project the dominant group onto the key frame, but rather scales the key frames to different sizes based on their importance score, the ‘full’ key frame is always used. There is no notion of a dominant group or projections. Since, *Uchihashi* does not teach or suggest “determining a group within each of the plurality of video segments” it does not teach or suggest all limitations of amended Claim 2.

#### **Claim 10**

Amended Claim 10 includes the limitations ‘determining a germ in each of a plurality of images, the germ containing a region of interest, wherein the video region less the germ defines a support in each of the video regions’, ‘separating the germ from the video segments’ and ‘filling in the space of the canvas between the germs with one or more parts of the support, wherein at least one pixel in the space corresponds to the support pixel from the closest germ’. A word search of *Jun* indicates the words ‘space’ and ‘separate’ do not occur. A word search of *Jun* indicates the word ‘background’ appears only in the title ‘background to the invention’, while the word ‘support’ appears twice in paragraph [0081] but in both cases in the verb form and pertaining to ‘providing or maintaining’ but not in the noun form. Therefore, *Jun* does not explicitly teach or

suggest separating the video region into a germ and a support and then filling the space with the support as outlined in amended Claim 10.

Since neither *Jun* nor *Uchihashi* teach or suggest these limitations, they do not teach or suggest all limitations of Claim 1. MPEP 2143.03. As such, Claim 1 was not obvious at the time the invention was made.

Claims 2-6, 13-15 and 20 all directly or indirectly depend from independent Claims 1 and 10, and are therefore believed patentable for at least the same reasons as independent Claims 1 and 10 and because of the additional limitations of these claims.

**B.** Claims 7-9 and 16-18 are rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over *Jun*, in view of Hirata U.S. Patent No. US 6,922,485 (hereinafter *Hirata*).

#### **Claim 1**

Amended Claim 1 includes the limitations ‘defining a germ associated with each dominant group in each of the video segments, wherein the video segment less the germ defines a support in each of the video segments’, ‘separating the germ from the video segments’ and ‘filling in the space of the canvas between the germs, wherein filling in the space of the canvas between the germs includes laying out one or more portions of the supports, wherein the one or more portions of the supports are positioned in the space such that at least one pixel value of the support relative to the closest germ is positioned corresponding to the position of that pixel value relative to the germ from which it was

separated'. Since neither *Jun* nor *Hirata* teach or suggest 'defining a germ associated with each dominant group in each of the video segments, wherein the video segment less the germ defines a support in each of the video segments', 'separating the germ from the video segments' and 'filling in the space of the canvas between the germs, wherein filling in the space of the canvas between the germs includes laying out one or more portions of the supports', they do not teach or suggest all limitations of Claim 1. As such, Claim 1 was not obvious at the time the invention was made.

#### **Claim 7**

Claim 7 includes the limitation "assigning a pixel value of each point in the canvas to the same pixel value in the support associated with the germ closest to each point". The Examiner asserts that *Hirata* teaches assigning a pixel value of each point in the canvas to the same pixel value in the support associated with the germ closest to each point", column 6, lines 62-67 – column 7, lines 1-14. Applicants respectfully disagree with the Examiner's interpretation of *Hirata*. What *Hirata* does is to reduce the effect of the boundary. The complete text of *Hirata* to which the Examiner cited is included:

"Usually texture should be evaluated using texture-stable area. Since the outside of the color region have a different type of the texture from the inside of the color region. In calculating the texture coefficients (e.g., wavelet coefficients), the effect of the boundary is usually included. TO EVALUATE THE TEXTURE INSIDE THE COLOR REGION, THE SYSTEM HAS TO REMOVE THE EFFECT OF THE BOUNDARY AREA. Using the pixels, n-pixel depth from the boundary in calculating the texture coefficient is one of the way to reduce the effect of the boundary. In order to calculate wavelet coefficients, the invention applies an N-level wavelet transform to the stored image and gets 3.times.N coefficients for each pixel. In order to reduce the boundary effects, the invention does not

use the edge part (i.e., below +4 pixel depth). Finally, the invention uses the L2 norm of vectors to calculate the similarity distance.

Referring to FIG. 3, the invention is described in summary fashion. At S300, a region extraction is executed on an input image. Typically, the image is input as a Red-Blue-Green (RGB) intensity value matrix, but other types of image matrices can be used as well. The region extraction is based on the color values. At S310, a merge function based on a boundary analysis of the input image is performed. The merge function is based on the shape analysis of the boundary lines. At S320, the input image undergoes segmentation. The segmentation of the input image is based on a hierarchical cluster analysis. After the segmentation, at S330, the input image undergoes another merge function based on a boundary analysis. In this boundary analysis, the shape, density and energy of the boundary line descriptions are analyzed. Next, at S340, small isolated areas within the input image are merged. This merge function is based on the relationship of the small regions to larger color regions. Finally, at S350, visual features (e.g., dominant color, color layout, wavelet, edge histogram, shape) are calculated and assigned for each region of the input image". Hirata, page 8, lines 46-67 – page 9, lines 1-20 (emphasis added).

Thus the pixel does not come from the support of a single key frame. Since neither *Jun* nor *Hirata* teach or suggest "assigning a pixel value of each point in the canvas to the same pixel value in the support associated with the germ closest to each point", they do not teach or suggest all limitations of Claim 7. As such, Claim 7 was not obvious at the time the invention was made.

### **Claim 8**

Claim 8 includes the limitation "wherein if the germ closest to the point does not have a support that includes the point, the point is assigned the pixel value of the closest germ with a support that includes the point". The Examiner argues that this limitation is



also taught *Hirata* at column 6, lines 62-67 – column 7, lines 1-14. Applicants respectfully disagree. *Hirata* does not allow the point to be assigned to a single “pixel value of the closest germ with a support that includes the point”. Since neither *Jun* nor *Hirata* teach or suggest “assigning the pixel value of the closest germ with a support that includes the point”, they do not teach or suggest all limitations of Claim 8. As such, Claim 8 was not obvious at the time the invention was made.

#### **Claim 9**

Claim 9 includes the limitation “wherein the point is assigned a background value if no support includes the point”. The Examiner argues that this limitation is also taught *Hirata* at column 6, lines 62-67 – column 7, lines 1-14. Applicants respectfully disagree. Because *Li* constructs the pixel from a median of pixels over multiple frames, the method does not allow the point to be assigned to a single “background value”. Since neither *Jun* nor *Hirata* teach or suggest “assigning the pixel to a background value”, they do not teach or suggest all limitations of Claim 9. As such, Claim 9 was not obvious at the time the invention was made.

#### **Claim 10**

Amended Claim 10 includes the limitations ‘determining a germ in each of a plurality of images, the germ containing a region of interest, wherein the video region less the germ defines a support in each of the video regions’, ‘separating the germ from the video segments’ and ‘filling in the space of the canvas between the germs with one or more parts of the support, wherein at least one pixel in the space corresponds to the

support pixel from the closest germ'. Since neither *Jun* nor *Hirata* teach or suggest 'determining a germ in each of a plurality of images, the germ containing a region of interest, wherein the video region less the germ defines a support in each of the video regions', 'separating the germ from the video segments' and 'filling in the space of the canvas between the germs with one or more parts of the support, wherein at least one pixel in the space corresponds to the support pixel from the closest germ', they do not teach or suggest all limitations of Claim 10. As such, Claim 10 was not obvious at the time the invention was made.

Claims 7-9 and 16-18 all directly or indirectly depend from independent Claims 1 and 10, and are therefore believed patentable for at least the same reasons as independent Claims 1 and 10 and because of the additional limitations of these claims.

C. Claims 11 and 19 are rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over *Jun*, in view of Li et al., U.S. Patent No. US 7,035,435 (hereinafter *Li2*).

Claims 1 and 10 include the limitations 'defining a germ associated with each dominant group in each of the video segments, wherein the video segment less the germ defines a support in each of the video segments', 'separating the germ from the video segments', 'filling in the space of the canvas between the germs, wherein filling in the space of the canvas between the germs includes laying out one or more portions of the supports, wherein the one or more portions of the supports are positioned in the space such that at least one pixel value of the support relative to the closest germ is positioned corresponding to the position of that pixel value relative to the germ from which it was

separated' and 'determining a germ in each of a plurality of images, the germ containing a region of interest, wherein the video region less the germ defines a support in each of the video regions' and 'filling in the space of the canvas between the germs with one or more parts of the support, wherein at least one pixel in the space corresponds to the support pixel from the closest germ'. *Jun* nor *Li2* do not teach or suggest all limitations of Claims 1 and 10. As such, Claims 1 and 10 were not obvious at the time the invention was made.

Claims 11 and 19 directly depend from independent Claims 10 and 19, and are therefore believed patentable for at least the same reasons as independent Claims 1 and 10 and because of the additional limitations of these claims.

**D.** Claim 21 is rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over *Jun*, in view of *Lin*, U.S. Patent No. US 6,307,964 (hereinafter *Lin*).

#### **Claim 21**

Claim 21 includes the limitation "using a Voronoi algorithm to determine the shape of the support to be placed on the canvas". The Examiner argues that *Lin* teaches this limitation. Applicants respectfully disagree. In fact *Lin* teaches a "Voronoi Ordering function", which is a function for ordering a set of points with respect to a closed contour. Column 4, lines 15-42. In particular, that contour is part of the input. In contrast, the Applicants' Voronoi algorithm computes the boundary curves between the germs, so the contours are part of the 'output'. The purpose of our Voronoi algorithm is to fill in the space between the germs, with respect to a plurality of output shapes. In contrast, *Lin*

computes a "shape descriptor", or an abstraction of a single input shape. Georgy Voronoi made significant contributions to mathematics and geometry. His name is attached to many algorithms, functions and operations. However, the 'Voronoi algorithm' and the 'Voronoi Ordering function' are not the same. Since neither *Jun* nor *Lin* teach or suggest "using a Voronoi algorithm to determine the shape of the support to be placed on the canvas", they do not teach or suggest all limitations of Claim 21. As such, Claim 21 was not obvious at the time the invention was made.

In addition, Claim 21 directly depends from independent Claim 1, and is therefore believed patentable for at least the same reasons as independent Claim 1.

In view of the above, Applicants respectfully request that the Examiner reconsider and withdraw the 103(a) rejections.

## CONCLUSION

In light of the above, it is respectfully requested that all outstanding rejections be reconsidered and withdrawn. The Examiner is respectfully requested to telephone the undersigned if he can assist in any way in expediting issuance of a patent.

The Commissioner is authorized to charge the required fees and any underpayment of fees or credit any overpayment to Deposit Account No. 06-1325 for any matter in connection with this reply, including any fee for extension of time, which may be required.

Respectfully submitted,

Date: July 25, 2008

By: /Anthony G. Craig/  
Anthony G. Craig  
Reg. No. 50,342

FLIESLER MEYER LLP  
650 California Street, 14<sup>th</sup> Floor  
San Francisco, CA 94108  
Telephone: (415) 362-3800  
Customer Number 23910